

Aiming towards compact versatile ranging lidars

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For the same maximal instantaneous output power, today's lasers tend to be more and more compact and rapid in terms of pulse duration (ps, fs...) and of pulses emission rates (from Hz to kHz).

Such laser evolution would benefit from a significative improvement in the versatility and compacity of the rest of the lidar station to facilitate the tracking of rapidly flying satellites (mainly used for earth survey programs).

The simplest way of gaining in compacity is to use a unique telescope for the laser emission pulse and for receiving the photons coming back from the retroreflecting target.

Then, a versatile switch between the emission beam and the received echoes is necessary in order to enable the reception from nearby satellites to lunar targets (400 km to 400 000 km).

This communication will present and compare optical switches as regards their suitability to the design and upgrade of compact and versatile laser ranging stations.